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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/043,939

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Lisa Dhar

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7590

03/16/2004

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EXAMINER

DICUS, TAMRA

ART UNIT

PAPER NUMBER

1774

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/043,939	DHAR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tamra L. Dicus	1774	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 20-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-19 and 40-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
     a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Amendment***

This office action is responsive to the amendment of November 24, 2003.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-12, 14-15, 18-19, 40-41, 43-44, and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,932,045 to Campbell et al. in view of USPN 5,606,433 to Yin et al.

Campbell teaches a system comprising a first and second substrate having an adherent between the substrates in Figures 2-5. See patented claims 1, 3, and 4 teaching all the limitations to the flatness and waviness requirements and Strehl value. The substrate can be any shape. The same materials are taught; therefore the optically reflective property is inherent (claim 40). See col. 3, lines 55-60, col. 4, lines 25-68, col. 11, lines 30-50, col. 12, lines 49-64, and col. 13, line 55-col. 14, line 14. See col. 12, lines 55-65 teaching properties of thickness between 0.1 to 1 mm and transmission flatness values from 0.1 to 10 waves/cm. Campbell does not teach adding a third substrate via photopolymer adherent, but such an addition is merely duplicated as Campbell already provides the first and second substrate having adherent therebetween. Campbell further provides suggestion to include holograms at col. 12, lines 49-61 between

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substrates, teaching any transparent material used in holograms such as holographic memory cells (functional equivalent to holographic storage of instant claim 40) may be used as substrates. Additionally, Yin teaches lamination of multilayered holograms to glass via a partially UV hardened photopolymer just as applicant intends (instant claim 18) also using the same materials as applicant. See the teaching of Yin at col. 4, lines 15-25 and 55-60. Further at col. 5, lines 10-23, Yin provides teaching such laminated substrate/photopolymer structures are used for optical structures such as a windshield. It would have been obvious to one having ordinary skill in the art to include an additional third substrate via adherent because Yin provides such a lamination technique is a practiced technique for optical substrates, and further since it has been held that mere duplication of the essential working parts of a device (i.e. substrate/adherent) involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

3. To the type of curing process utilized (thermal or radiation) as described in instant claims 18 and 47, the adherent is cured, therefore, how it was done is not given patentable weight. Such limitations are process limitations in product claims. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on the article itself and not the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown*, 459 F. 2d 531. Both Applicant's and prior art reference's product are the same.

Regarding the thickness from 25 micrometers to 3 millimeters of the substrates (instant claims 15 and 44), such limitations are optimizable features. It would have been obvious to one

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of ordinary skill in the art to produce a thickness as required, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Thickness effects surface and transmission flatness as explained by Campbell at col.2, lines 21-22.

Campbell does not teach that the adherent is capable of storing data (instant claim 40). That the adherent is capable of storing data is not germane since it has been held that an element that is "being able to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

Claims 16 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,932,045 to Campbell et al. in view of USPN 5,606,433 to Yin et al. and further in view of USPN 4921319 to Mallik.

Campbell is relied upon above. Campbell does not teach relief patterns on surfaces of substrates. Mallik teaches surface relief hologram structures where surface relief patterns are facing the substrates on transparent holograms. See col. 2, lines 45-50. It would have been obvious to one of ordinary skill in the art to provide surface relief patterns on substrates because Mallik teaches relief patterns conventionally provide light diffracted differently at col. 1, lines 20-32.

Claims 17, 46, and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,932,045 to Campbell et al. in view of USPN 5,606,433 to Yin et al. and further in view of USPN 6,434,299 to Yudin et al.

Campbell is relied upon above. Campbell does not teach diffractive gratings of instant claims 17 or 46 nor reflective additions as required in new claims 49-53. However, Yudin provides wavelength division multiplexing having diffraction gratings for optical elements such as holograms and substrates such as glass and plastic. See col. 8, lines 34-46 where Yudin teaches the following: Reflective concave diffraction grating 16 can be formed from a variety of materials and by a variety of techniques. For example, the reflective concave diffraction grating 16 can be formed by a three-dimensional hologram in a polymer medium, or by replicating a mechanically ruled master with a polymer material. In both cases, the polymer is overcoated with a thin, highly reflective metal layer such as, for example, gold or aluminum. Alternatively, the reflective concave diffraction grating 16 can be formed by chemically etching into a concave material such as, for example, glass or silicon, which is also overcoated with a thin, highly reflective metal layer such as, for example, gold or aluminum. Such teaching is equivalent to providing reflective layers of gold or aluminum on substrates as required by instant claims 49-53. It would have been obvious to one of ordinary skill in the art to include reflective layers of gold or aluminum on substrates and to contain diffractive grating because Yudin teaches the application for forming three-dimensional holograms as cited above.

Claims 13 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,932,045 to Campbell et al. in view of USPN 5,606,433 to Yin et al. and further in view of USPN 6671073 to Hegel.

Campbell is relied upon above. Campbell does not teach adding holes to a substrate as required per instant claims 13 and 42. Hegel teaches holographic devices for storage where substrates have holes and a photopolymer layer is injected into the gap between the two

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substrates 24 and 26 through the hole 25 defined in the upper substrate 24 for instance. See col. 5, lines 5-15. It would have been obvious to one of ordinary skill in the art to include holes to allow photopolymer because Hegel teaches doing so to get faster cycle times as taught at col. 5, line 20.

***Response to Arguments***

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 2, 2004

[tld]

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